

Box 2-4. Basis of OSHA Carcinogen Listing for Individual Chemicals

Chemical	IARC	NTP	OSHA-Z	Chemical	IARC	NTP	OSHA-Z
Acetaldehyde	2B	P	—	2,4-D chlorocrotyl ester‡	2B	—	—
Acetamide	2B	—	—	2,4-D 2-ethylhexyl ester‡	2B	—	—
2-Acetylaminofluorene	—	P	Z	2,4-D 2-ethyl-4-methylpentyl ester‡	2B	—	—
Acrylamide	2A	P	—	2,4-Diaminoanisole	2B	—	—
Acrylonitrile	2A	P	Z	2,4-Diaminoanisole sulfate	—	P	—
2-Aminoanthraquinone	—	P	—	4,4'-Diaminodiphenyl ether	2B	—	—
4-Aminoazobenzene	2B	—	—	2,4-Diaminotoluene	2B	P	—
4-Aminobiphenyl	1	K	Z	Diaminotoluene (mixed isomers)	2B	P	—
1-Amino-2-methylantraquinone	—	P	—	1,2-Dibromo-3-chloropropane	2B	P	Z
Amitrole	2B	P	—	1,2-Dibromoethane	2A	P	—
o-Anisidine	2B	—	—	1,4-Dichlorobenzene	2B	P	—
o-Anisidine hydrochloride	—	P	—	Dichlorobenzene (mixed isomers)	2B	P	—
Arsenic and inorganic arsenic compounds	1	K†	Z	3,3'-Dichlorobenzidine	2B	P	Z
Asbestos (friable)	1	K	Z	3,3'-Dichlorobenzidine dihydrochloride	2B	P	—
Atrazine	2B	—	—	3,3'-Dichlorobenzidine sulfate	2B	P	—
Benzene	1	K	Z	1,2-Dichloroethane	2B	P	—
Benzidine	1	K	Z	Dichloromethane	2B	P	—
Benzoic trichloride	2B	P	—	trans-1,3-Dichloropropene	2B	—	—
Beryllium and beryllium compounds	1	P†	—	1,3-Dichloropropylene	2B	P	—
Bis(chloromethyl)ether	1	K	Z	Dichlorvos	2B	—	—
1,3-Butadiene	2A	P	—	Diepoxybutane	2B	P	—
C.I. Acid Red 114	2B	—	—	Di-(2-ethylhexyl)phthalate	2B	P	—
C.I. Direct Black 38	2A	P	—	Diethyl sulfate	2A	P	—
C.I. Direct Blue 6	2A	P	—	Diglycidyl resorcinol ether	2B	p	—
C.I. Direct Brown 95	2A	—	—	Dihydrosafrole	2B	—	—
C.I. Food Red 5	2B	—	—	3,3'-Dimethoxybenzidine	2B	P	—
C.I. Solvent Yellow 34 (Auramine)	2B	—	—	3,3'-Dimethoxybenzidine dihydrochloride	2B	P	—
Cadmium and cadmium compounds	1	P†	—	3,3'-Dimethoxybenzidine hydrochloride	2B	P	—
Carbon tetrachloride	2B	P	—	4-Dimethylaminoazobenzene	2B	P	Z
Chlordane	2B	—	—	3,3'-Dimethylbenzidine	2B	P	—
Chlorendic acid	2B	P	—	3,3'-Dimethylbenzidine dihydrochloride	2B	P	—
p-Chloroaniline	2B	—	—	3,3'-Dimethylbenzidine dihydrofluoride	2B	P	—
Chloroform	2B	P	—	Dimethylcarbamyl chloride	2A	P	—
Chloromethyl methyl ether	1	K	Z	N,N-Dimethylformamide	2B	—	—
3-Chloro-2-methyl-1-propene	—	P	—	1,1-Dimethylhydrazine	2B	P	—
Chlorophenols	2B	—	—	Dimethyl sulfate	2A	P	—
p-Chloro-o-toluidine	2B	—	—	1,4-Dioxane	2B	P	—
Chromium (VI) compounds	1	K	—	1,2-Diphenylhydrazine	—	P	—
Cobalt and cobalt compounds	2B	—	—	2,4-D isopropyl ester‡	2B	—	—
Creosote	2A	—	—	2,4-DP‡	2B	—	—
p-Cresidine	2B	P	—	2,4-D propylene glycol butyl ether ester‡	2B	—	—
Cupferron	—	P	—	2,4-D sodium salt‡	2B	—	—
2,4-D‡	2B	—	—	Epichlorohydrin	2A	P	—
2,4-D butoxyethyl ester‡	2B	—	—	Ethyl acrylate	2B	P	—
2,4-D butyl ester‡	2B	—	—	Ethyleneimine	—	—	Z

Note: The list of TRI chemicals meeting the OSHA carcinogen standard and, therefore, reported when in a mixture at a concentration level below the de minimis level of 0.1%, has been updated, and this list reflects the update.

IARC: 1-The chemical is carcinogenic to humans; 2A-The chemical is probably carcinogenic to humans; 2B-The chemical is possibly carcinogenic to humans.

NTP: K-The chemical is known to be carcinogenic; P-The chemical may reasonably be anticipated to be carcinogenic.

OSHA: Z-The chemical appears at 29 CFR part 1910 Subpart Z.

† Certain compounds.

‡ Chlorophenoxy herbicides (IARC 2B).

Box 2-4. Basis of OSHA Carcinogen Listing for Individual Chemicals, Continued

Chemical	IARC	NTP	OSHA-Z	Chemical	IARC	NTP	OSHA-Z
Ethylene oxide	1	P	Z	Benzo(j)fluoranthene	2B	P	—
Ethylene thiourea	2B	P	—	Benzo(k)fluoranthene	2B	—	—
Formaldehyde	2A	P	Z	Benzo(rst)pentaphene	2B	—	—
Heptachlor	2B	—	—	Benzo(a)pyrene	2A	P	—
Hexachlorobenzene	2B	P	—	Dibenz(a,h)acridine	2A	P	—
Hexamethylphosphoramide	2B	P	—	Dibenz(a,j)acridine	2B	P	—
Hydrazine	2B	P	—	Dibenz(a,h)anthracene	2B	P	—
Hydrazine sulfate	—	P	—	7H-Dibenzo(c,g)carbazole	2B	P	—
Lead and inorganic lead compounds	2B	—	Z	Dibenzo(a,e)pyrene	2B	P	—
Lindane	2B	P	—	Dibenzo(a,h)pyrene	2B	P	—
Mecoprop‡	2B	—	—	Dibenzo(a,l)pyrene	2B	P	—
Methoxone‡	2B	—	—	7,12-Dimethylbenz(a)anthracene	2B	—	—
Methoxone sodium salt‡	2B	—	—	Indeno[1,2,3-cd]pyrene	2B	P	—
4,4'-Methylenebis (2-chloroaniline)	2A	P	—	5-Methylchrysene	2B	P	—
4,4'-Methylenebis (N,N-dimethyl benzeneamine	2B	P	—	1-Nitropyrene	2B	—	—
4,4'-Methylenedianiline	2B	P	Z	Potassium bromate	2B	—	—
Michler's ketone	—	P	—	Propane sultone	2B	P	—
Mustard gas	1	K	—	beta-Propiolactone	2B	P	Z
alpha-Naphthylamine	—	—	Z	Propyleneimine	2B	P	—
beta-Naphthylamine	1	K	Z	Propylene oxide	2B	P	—
Nickel	2B	P	—	Saccharin (manufacturing)	2B	P	—
Nickel compounds	1	P†	—	Safrole	2B	P	—
Nitrolotriacetic acid	—	P	—	Sodium o-phenylphenoxide	2B	—	—
4-Nitrobiphenyl	—	—	Z	Styrene	2B	—	—
Nitrofen	2B	P	—	Styrene oxide	2A	—	—
Nitrogen mustard	2A	—	—	Tetrachloroethylene	2B	P	—
2-Nitropropane	2B	P	—	Thioacetamide	2B	P	—
N-Nitrosodi-n-butylamine	2B	P	—	4,4'-Thiodianiline	2B	P	—
N-Nitrosodiethylamine	2A	P	—	Thiourea	2B	P	—
N-Nitrosodimethylamine	2A	P	Z	Toluene-2,4-diisocyanate	2B	P	—
N-Nitrosodi-n-propylamine	2B	P	—	Toluene-2,6-diisocyanate	2B	P	—
N-Nitroso-N-ethylurea	2A	P	—	Toluene diisocyanate (mixed isomers)	2B	P	—
N-Nitroso-N-methylurea	2A	P	—	o-Toluidine	2B	P	—
N-Nitrosomethylvinylamine	2B	P	—	o-Toluidine hydrochloride	—	P	—
N-Nitrosomorpholine	2B	P	—	Toxaphene	2B	P	—
N-Nitrosonornicotine	2B	P	—	Trichloroethylene	2A	—	—
N-Nitrosopiperidine	2B	P	—	2,4,6-Trichlorophenol	2B	P	—
Pentachlorophenol	2B	—	—	1,2,3-Trichloropropane	2A	—	—
Phenytoin	2B	P	—	Tris(2,3-dibromopropyl)phosphate	2A	P	—
Polybrominated biphenyls (PBBs)	2B	P	—	Trypan blue	2B	—	—
Polychlorinated biphenyls (PCBs)	2A	P	—	Urethane	2B	P	—
Polycyclic aromatic compounds (PACs):				Vinyl acetate	2B	—	—
Benz(a)anthracene	2A	P	—	Vinyl bromide	2A	—	—
Benzo(b)fluoranthene	2B	P	—	Vinyl chloride	1	K	Z
				2,6-Xyldine	2B	—	—

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